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**PRESERVING NATURE THROUGH PEOPLE  
MANAGEMENT: HOW CAN HRM CONTRIBUTE TO  
ENVIRONMENTAL SUSTAINABILITY?**

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## **Preserving nature through people management: How can HRM contribute to environmental sustainability?**

Companies as significant emissions contributors are required to apply a pro-environmental business approach when facing the challenges of global warming for compliance reasons and to exhibit a competitive advantage. HRM with its role in mobilizing employees could be ideally positioned to promote the tackling of environmental-related issues. This literature review, therefore, aims to answer the question of how HRM can contribute to the environmental sustainability of an organization. The results revealed several Green HRM practices, their effectiveness and measurement, the role of the HR department and the impact on organizational performance. Several shortfalls, practical implications, and future avenues are discussed.

**Keywords:** HRM sustainability; green HRM; environmental management; e-HRM;

## 1 Introduction

In the context of facing the challenges of the Paris Agreement and the Sustainable Development Goals (*SDGs*), it seems interesting and crucial to take notice on how companies are coping and to further investigate on the means to enhance progress in that relation. At the Paris climate conference in 2015, 195 countries came together and adopted the first global climate deal (European Commission, 2018). The aim is to strengthen the global response to the menace of climate change by lowering greenhouse gas (*GHG*) emissions and fostering climate resilience (European Commission, 2018). Each country determines its contribution to mitigate global warming, and the agreement targets additionally bolstering the capability of countries to cope with the impact of climate change (UN Framework Convention on Climate Change, 2018). The *SDGs* represent a blueprint that calls for action by all countries to achieve a more sustainable future by 2030 with its 17 goals from which some of them relate to climate, environmental degradation and all in all promote prosperity while protecting the planet (United Nations, 2018). CO<sub>2</sub> emissions evolving from companies' activities have flattened in the last few years due to efforts in rethinking current and future business models (Climate Action Tracker, 2017). Nevertheless, it is too soon to state that global *GHG* emissions have achieved their peak which needs to happen by 2020 to meet the Paris Agreement's warming limits (Climate Action Tracker, 2017). However, it is not merely an issue of the commitments to the Paris Agreement and the *SDGs*. As organizations are significant emissions contributors, they are thereby also obligated to adhere to compiled environmental regulations or otherwise encounter different possible penalties (UK Department of Energy and Climate, 2010). Additionally, beyond these legal compliances, managers also recognize the crucial opportunities in regards to reputation and competitive advantage when pursuing environmental sustainability (Etzion, 2007; Millar, Hind & Magala, 2012). It has been referred by O'Donohue and Torugsa (2016) that the reactive approach of mere compliance to environmental regulation is not

any longer sufficiently competitive. It is rather to execute an approach that indicates forward-thinking, strategically oriented business practices to enhance organizational performance by emphasizing on obviating waste, decreasing energy consumption, and innovating products and processes to minimize damaging consequences from the various stages of product lifecycles (O'Donohue & Torugsa, 2016). In this context, many organizations consider aligning environmental sustainability with their overall corporate strategy to benefit the most (Esty & Winston, 2009). The essential question to be answered in this context is how an organization has to structure and organize itself to achieve this alignment effectively and achieve beneficial results. One possibility is to set up an Environmental Management System (*EMS*) that structures an environmental approach to business through initiatives and policies (Rondinelli & Vastag, 2000). However, according to Rondinelli and Vastag (2000), only implementing an EMS in an organization does not necessarily imply a change in employee environmental behavior. According to Ronnenberg and colleagues, one of the reasons for an unsuccessful implementation of an EMS is that organizations do not take into account the processes employees would require for them to accept an organizational change (Ronnenberg, Graham, & Mahmoodi, 2011). Thus, integrating these systems in established organizational functions such as Human Resources Management (*HRM*) seems crucial to achieve an effective implementation of an EMS (Rondinelli & Vastag, 2000; Daily & Huang, 2001; Renwick, Redman, & Maguire, 2013). HRM practices (e.g., training, empowerment, rewards) are likely to possess supportive characteristics when it comes to a strategic execution of sustainability initiatives, policies and goals (Daily & Huang, 2001; Govindarajulu & Daily, 2004). HRM could be ideally positioned to influence environmental transition, as its role in moving an organization towards change incorporates the responsibilities of ensuring policies, processes and systems are cohesive and communicated clearly to employees (Rimanoczy & Pearson, 2010; Dubois & Dubois, 2012). Employee engagement and commitment is crucial when integrating

pro-environmental practices in companies (Aragon-Correa, Martin-Tapia, & Hurtado-Torres, 2013; Renwick *et al.*, 2013). The latter two aspects evoke a positioning and alignment of environmental management and HRM (Haddock-Millar, Sanyal & Müller-Carmen, 2016), and according to Jabbour (2011), a systematic alignment is crucial to put employees and managers in control of environmental management. Otherwise, if traditional HR practices only include environmental issues with little formalization, the performance in the development of teams, learning and organizational culture can result in a downward spiral (Jabbour, 2011). Furthermore, independently developing a sustainability strategy outside the HR department leads HR managers to merely communicate environmental values rather than actively and strategically foster environmental initiatives (Cohen, Taylor, & Muller-Carmen, 2012). Thus, the positioning of a greening function and aligning it with a corporate strategy is key when realizing ameliorated environmental sustainability of an organization (Cohen *et al.*, 2012). In that association, the concept of *Green HRM (GHRM)* is drawn on.

*Green HRM refers to the practices aligned with environmental sustainability objectives and which intend to develop employees' motivation, involvement, commitment and abilities and in support of these objectives* (Jackson, Renwick, Jabbour, & Muller-Camen, 2011; Renwick *et al.*, 2013).

By that, it can be seen as a “systemic, planned alignment of typical human resource management practices with the organizations’ environment goals” (Jabbour, 2013a, pp. 147-148). Furthermore it draws on the concept of *High Performance Work Practices* (e.g., developing skills, enhancing motivation & commitment, employee participation) (Huselid, 1995), and thereby refers to concrete HRM practices supporting the execution and maintenance of a pro-environmental business approach leading to elevated green performance outcomes and attaining other organizational goals (Renwick *et al.*, 2013; Becker & Huselid, 1998). When aiming to achieve environmental targets, initially strategic priorities and objectives have to be devel-

oped and expounded. Consequently, the strategy has to be translated into operational practice, whereas the ways are identified to align overall strategy and GHRM's strategic priorities (Haddock-Millar *et al.*, 2016; Jackson & Seo, 2010). This paper is a literature review to systematize the role of HRM in contributing to environmental sustainability outcomes of organizations such as how to foster employee environmental behavior and other factors. It scrutinizes the concept and effectiveness of GHRM with its pro-environmental management components. It also addresses briefly how the influence of Information Technology on HRM processes can assist and broaden this organizational change towards greater environmental sustainability.

## **2 Methodology**

The paper is a literature review of significant research made on HRM and its association with the environmental sustainability of organizations. This approach was chosen as it structures existing research, builds a reliable knowledge base in this field and sheds light on uncovered topics that could be promising for future research. Furthermore, practical implications can be derived from its emerging body of knowledge. The topics of green HRM, environmental management and organizational sustainability are integrated and being discussed. The keywords – HRM sustainability; green HRM; environmental management; e-HRM - were used, and a total of 45'863 articles came out of the Google Scholar database and the Mendeley program. The criteria of the chosen articles in this literature review are its publishing year and the rating of the respecting journal. Scientific articles that were published between the years of 2010 and 2018, and in journals that were three and four stars rated according to ABS-2015 rating stood in the foreground and were entirely considered for this paper. Further literature and articles that do not fulfill these requirements were still reviewed, but less stressed and focused on when inspecting the research question of “how can HRM contribute to environmen-

tal sustainability.” Thus, this paper consists of information gathered from a total of 39 different articles and sources, whereas 13 articles were assessed in the format of a literature review, and from which 12 fulfilled the mentioned requirements. A list of the 14 most essential articles for this paper is presented in the Appendix whereas the content is briefly summarized.

### **3 Literature Review**

HRM can contribute to companies’ sustainability efforts through diverse mechanisms. The review is structured according to HRM practices associated with environmental sustainability (ES); consequently, the role of the HR department in promoting GHRM is discussed. Lastly, GHRM effectiveness, measurement and the impact on organizational performance are thematized.

#### **3.1. HRM practices associated with environmental sustainability**

According to Ullah and Jahan’s (2017) literature review, there are GHRM practices and processes in the various HR functions (e.g., acquisition, induction of recruits, training, performance management, reward management) that can lower the carbon footprint of an organization (Ullah & Jahan, 2017).

*Green HR planning* focuses on the forecast of the number and which type of people to hire to be able to implement and realize green initiatives and activities (Ullah & Jahan, 2017). When pro-environmental initiatives are interrelated with individual jobs, individual-level green employee behavior can be enhanced (Renwick, Muller-Carmen, Redman, & Wilkinson, 2016).

*Green recruitment* incorporates targeting specific recruitment sources and recruiting green-minded candidates who are familiar with green practices, and the procedure of online recruitment as it further reduces the carbon footprint (Ullah & Jahan, 2017). It implies developing materials that communicate information related to a company’s green goals and exposes its

sustainability commitment, and training recruiters to fully acknowledge and apply environmental related questions within the recruitment process (Ullah & Jahan, 2017).

*Green induction* is concerned with the provision of necessary basic information integrated in electronic learning packages to new recruits about EMS, policies and practices of an organization (Ullah & Jahan, 2017). Furthermore, environmental orientation programs specific to individual jobs are utilized so that they get integrated into a culture of green consciousness and to demonstrate the relevance of the managerial role in tackling and dealing with environmental issues (Ullah & Jahan, 2017; Renwick *et al.*, 2016). These on-boarding and socialization practices reinforce the position of training and incentives (further discussed subsequently) that are designed as a foundation for GHRM initiatives (Renwick *et al.*, 2016)

*Green training and development* incorporates environmental stewardship programs for employees at all levels, to train them for sustainable working methods (e.g., waste reduction & management, utilizing resources properly, energy efficiency & conservancy, recycling, safety, reducing causes of environmental degradation) (Ullah & Jahan, 2017), to disseminate organizational values about needed changes, and to encourage employees to produce innovative, proactive environmental strategies (Renwick *et al.*, 2016). These plans to make employees acquire a green attitude and environmental management skills are materialized through web-based modules, interactive media, programs, workshops, sessions and job rotation in green assignments while embedding principles of educational and motivational strategies (Ullah & Jahan, 2017; Renwick *et al.*, 2016). The extensive use of web-based environmental management training or for other functional areas is highlighted to lower the carbon footprint (e.g., no paper use) (Ullah & Jahan, 2017). Furthermore, training should be tailored accordingly to engage employees in greater detail (Renwick *et al.*, 2016).

*Management development and leadership.* A transformational leadership style is suggested since it has been referred that associated positive emotions are mediating relationships be-



tween green transformational leadership and employee green behavior (Renwick *et al.*, 2016). Furthermore, the literature highlights the introduction of positions such as Chief Sustainability Officer in multinationals who proactively claim green initiatives, as well as the promotion of employees to internal green champions who are actively acting for ES (Renwick *et al.*, 2016). According to these authors, these environmental management leaders set an example to other employees which might bolster the pro-environmental behaviors of a whole organization (Renwick *et al.*, 2016).

*Green performance management and appraisal* use performance management for environmental management to improve the quality and value of environmental performance (Ullah & Jahan, 2017). Performance evaluation criteria should be adjusted for this exact purpose, and additional indicators should be added (e.g., employee involvement & participation in environmental management) to develop beneficial, constructive green performance initiatives (Renwick *et al.*, 2016). Furthermore, Ullah and Jahan (2017) referred that a successful implementation of green performance management is achieved by linking performance management and green job description. Green performance appraisal bears the challenge of identifying the accurate ways of measuring and gaining valuable green performance data across different units of the organization (Ullah & Jahan, 2017).

*Green compensation and reward management* represent compensation mechanisms that intend to leverage change in employee behavior by rewarding green skills acquisition and achievements associated with sustainability projects with either monetary (salary increase or bonuses), non-monetary (sabbaticals, special leave, gifts) or recognition-based rewards (public praise) (Ullah & Jahan, 2017). Alcaraz and colleagues claim here to implement green compensation practices not only for top leaders but for all levels (Alcaraz, Susaeta, Suarez, *et al.*, 2017). Moreover, compensation mechanisms for environmental performance signal to external stakeholders the profound commitment of an organization and its substantial attempt

(Renwick *et al.*, 2016). However, Renwick and colleagues referred, to persuade the senior management for such initiatives, the organizational financial structure has to be changed to facilitate routines of designing sustainable products (Renwick *et al.*, 2016). In this case, external stakeholders can be of use as in the case of English Universities whose capital funding is linked to its carbon management and 40% of funding is withheld in the case of not producing credible environmental plans (Renwick *et al.*, 2016).

*Employment relations and employee engagement.* Employee involvement and individual empowerment as elements of the construct employment relations are referred to be needed to embed environmental management into an organization's identity, influencing productivity, and facilitating self-control, individual thinking and problem-solving skills (Renwick *et al.*, 2016; Ullah & Jahan, 2017). Regarding self-control, Norton and colleagues state that green behavioral intentions and actual green behavior show a weak relationship when workplace requirements and constraints decrease employees' control (Norton, Zacher, Parker, & Ashkanasy, 2017). Employees becoming socially or ecologically entrepreneurs or eco-entrepreneurs should be empowered by green employee relations (Ullah & Jahan, 2017). Additionally, *High Involvement Work Practices (HIWPs)* are seen to be encouraging the implementation of environmental strategies. Moreover, environmental strategies mediate the relationship between HIWPs and economic performance in green strategies, and organizations which adopt environmental management standards report higher labor productivity as to not applying them (Renwick *et al.*, 2016). The higher the employee engagement with the organization and green performance while participating in environmental initiatives, the lower employees' intention to quit (Renwick *et al.*, 2016). An empirical study revealed a significant positive association between sustainability efforts (e.g., EMS implementation) and work satisfaction, recruitment and retention benefits (Wagner, 2013). Work-life balance encouraged by

the HR department might be another factor that increases motivation and commitment, and facilitates eco-friendly behavior (Renwick *et al.*, 2016).

### **3.2. The role of the HR department in promoting Green HRM**

To enhance GHRM initiatives towards organizational sustainability, multi-level dynamics must be recognized, since the mentioned practices evolve around employee participation, competencies, financial and environmental performance connections as well as contextual issues (e.g., culture, stakeholders) (Renwick *et al.*, 2016). A comparative case study showed that different contexts (e.g., subsidiaries in different countries) create different environmental approaches (e.g., broad & value-based vs. defensive vs. strategic), which result from differentiations in strategic, operational and cultural dimensions defined by the local business conditions and experiences (Haddock-Millar *et al.*, 2016). These ultimately end in variations in the structure, position and alignment of HR, and environmental functions of a firm according to which subsidiaries choose to invest in green development and training (Haddock-Millar *et al.*, 2016).

It was detected, even when HR managers privately have green concerns, they often execute a passive approach within the work context instead of a proactive one, since organizational sustainability is not seen as an HR priority or they lack the necessary resources to enact a pro-environmental approach (Renwick *et al.*, 2016). Likewise, Alcaraz and colleagues argue concerning the results in their study that efforts to align HRM practices with ES and social responsibility (SR) are often not clearly enunciated and HRM is not adopting an active role. This fact evolves from the issue of missing budgets that are specifically assigned for ES and SR initiatives thus HR professionals can hardly become agents of change (Alcaraz *et al.*, 2017). So, De Stefano and colleagues argue that the role of the HR department in facilitating sustainability of organizations remains unclear. This ambiguity evolved from the multiple dimensions of potential HR contributions to sustainability and the failure to integrate the func-

tions of HRM and environmental management, although HR might play a broader role than expected and its impact could go even beyond organizational boundaries (De Stefano, Bagdadli, & Camuffo, 2018). To deal with this ambiguity, De Stefano and colleagues articulated a typology to classify HR roles in Corporate Social Responsibility (CSR) and Corporate Sustainability (CS) (De Stefano *et al.*, 2018). Below, the implications of the typology are discussed and related to the concept of the *strength of the HRM system*.

### **3.2.1. A typology of roles**

The typology of the potential HR roles in CSR and CS includes the following dimensions: Orientation of HR activities (people vs. processes) and focus of CSR/CS initiatives (internal vs. external) (De Stefano *et al.*, 2018). The four quadrants indicate that HR is involved in the development of: (1) Sustainable HRM (e.g., internal & people; e.g., sustainable HRM systems; e.g. well-being, job security); (2) Community sustainability (e.g., external & people ; e.g., sustainable local & global communities; volunteering & job creation); (3) Ecosystem sustainability (e.g., external & processes; e.g., sustainable enterprise ecosystems; e.g., labor rights & codes of conduct); (4) CSR (e.g., internal & processes; e.g., sustainable business organizations; e.g., HR practices & climate for CSR). The study reveals that an instrumental HR role dominates (e.g., internal & processes; e.g., HR for CSR), which confirms the general criticism of HR being inward-looking and evading external stakeholders, and led to HR's role losing its legitimacy (De Stefano *et al.*, 2018). These authors argue that HR professionals pursue a defensive approach because they could regard sustainability as being a menace to some of their expertise areas (e.g., diversity management). They suggest the implementation of HR actions based on a careful consideration of all stakeholders (e.g., external) to legitimate their role as a credible partner in sustainability and to abandon the conservative internal focus (De Stefano *et al.*, 2018). But for this to happen, the top organizational levels have to be involved in designing an organizational structure that enables the integration of HR and CSR/CS func-

tions while making use of effective communication, education, measurement and evaluation tools (De Stefano *et al.*, 2018). Merging HR with the CSR/CS function allows the exploitation of the overlaps and reduction of political conflicts between different departments over competency domains, but this merger would also lead to an enhanced exposure of HR managers to the demands of external stakeholders which forces automatically to innovate their processes and practices towards a broader scope (De Stefano *et al.*, 2018). All in all, these authors argue that HRM should be in charge of establishing codes of conduct, and to incorporate them with other HR practices and labor policies while joining the monitoring of notable organizations in the ecosystem (De Stefano *et al.*, 2018). According to Renwick and colleagues' review (2016), HRM systems and roles can be effectively greened and promote overall organizational sustainability by connecting GHRM and strategic HRM, such that workforce management practices, corporate strategy, and organizational context are aligned. This implies that HR managers must become strategic partners in the sustainability agenda of the organization (Renwick *et al.*, 2016).

Independently of what attempt and practices are specifically chosen to tackle organizational sustainability, HRM can play a significant role nevertheless. The concept of *the strength of the HRM system* demonstrates how the presence of specified characteristics of HRM processes (e.g., distinctiveness, consistency, consensus) can create a *strong climate* which mediates the linkage between HRM and firm performance (Bowen & Ostroff, 2004). Organizational climate consists of the perception of formal and informal organizational practices and procedures, and a strong climate entails organizational conformity, as there is a common interpretation of what behaviors are expected and rewarded (Bowen & Ostroff, 2004). HRM actions and practices can be viewed as communication from employer to employee, and a strong HRM system fosters interactions and results in fewer event cycles needed to develop a shared interpretation (Bowen & Ostroff, 2004). Therefore, the effectiveness of the strength of the

HRM system can be conceptualized in transmitting the types of information needed to create a strong climate (Bowen & Ostroff, 2004). With a strong HRM system and the consequent formation of a strong climate, adequate employee attributes are being accumulated which influences organizational effectiveness (Bowen & Ostroff, 2004). Similarly, Dumont, Shen, and Deng (2017) refer that employee attitudes towards HRM practices define which behavior is most probably affected. It has been referred that HRM practices can affect overall organizational performance by shaping workplace behavior and workplace outcomes through underlying mechanisms such as organizational climates (Dumont, Shen, & Deng, 2017). This indicates the generic critical role HRM could play when thriving to achieve organizational targets. Consistent with the psychological climate literature, Dumont and colleagues (2017) state in their empirical study that GHRM practices influence certain green behaviors through the mediating effect of green climate, and that individual green values moderate the relationship between green climate and certain green behaviors. Hence, green recruitment seems to be an essential GHRM practice (Dumont *et al.*, 2017). On that note, Norton and colleagues demonstrated how corporate environmental strategy positively relates to a green psychological climate which on the other hand moderates the effect of green behavioral intentions on green employee behavior (Norton *et al.*, 2017). This highlights the role and significance of organizational climate when bridging the gap between intention and an actual behavior, and accentuates the importance of the development of a strong corporate environmental strategy and its effective communication (e.g. positive examples in company newsletters) so that employees perceive and hold it as a positive green climate (Norton *et al.*, 2017; Renwick *et al.*, 2016).

### **3.2.2. Effectiveness, measurement, and impact on organizational performance**

Zibarras and Coan's (2015) exploratory analysis of United Kingdom-based organizations revealed that the most prevalent practices focus on manager involvement (e.g., championing by senior management), education and training (e.g., encouragement via awareness-raising cam-

paigns), and induction programs whereas the least prevalent relate to rewards. According to Alcaraz and colleagues' (2017) study which empirically explored the contribution of HRM to social and environmental health in a multi-country context (e.g., Ibero-America), results revealed that the most common practices refer to green recruitment and induction which are executed superficially and thereby do not induce an actual behavioral change of the personnel. The study furthermore revealed the lack of green performance appraisal, compensation and reward management (Alcaraz *et al.*, 2017). Zibarras and Coan (2015) argue that reward systems are hard to implement as individuals have different preferences and this is even more common in organizations with a high number of employees. However, manager involvement's high prevalence is a favorable circumstance for the HR function to become involved with managers for carrying out a strategic role in change management as they act as key gatekeepers especially with a transformational leadership style (Zibarras & Coan, 2015). The high use of campaigns (due to their low costs) may be problematic because they only raise awareness and do not necessarily imply a behavioral change (Zibarras & Coan, 2015). However, these campaigns together with the championing were part of the top three practices regarding pro-environmental behavior *effectiveness* (Zibarras & Coan, 2015). It has to be mentioned that these results about effectiveness were merely perception-based because only 16% of organizations in the sample evaluate their practices. It makes, therefore, sense that the most prevalent practices are the ones that are perceived as the most successful (Zibarras & Coan, 2015). Alcaraz and colleagues (2017) also reported that ES and SR initiatives were being assessed and evaluated rarely within their sample, and recommend to interrogate affected, external stakeholders about the value of the implemented initiatives as ultimately the receiver has the substantial notion rather than the executor. They state that systematic collaborations of the HR department with different stakeholders rarely happened and therefore the practices emerging from the HR department seem isolated, not comprehensive and not specific to the context

(Alcaraz *et al.*, 2017). An externally-oriented HRM architecture incorporating the firm's priorities, the flourishing of communities and ecosystem resilience as core elements is proposed so that sustainable value can be created at the intersection of these key elements (Alcaraz *et al.*, 2017). Zibarras and Coan (2015) suggest that evaluation metrics should be implemented more extensively to include objective data (e.g., resource usage & waste) instead of subjective, perception-based opinions, as the shortage of elementary and accurate green performance indicators integrated into the PMA system might inhibit the organization to engage employees in bridging practice and impact (Haddock-Millar *et al.*, 2016). In their study, Haddock-Millar and colleagues found that pro-environmental management practices represented a range of people-centered initiatives, whereas operational initiatives that could reflect more objective indicators, such as energy measurement, waste separation facilities, recycling waste, working with local community and environmental training for behavioral components might be more effective; for example, embedding routines (e.g. cardboard recycling) within the day-to-day operational systems is crucial when implementing any initiative (Haddock-Millar *et al.*, 2016). There is far more potential in other methods to effectively tackle ES than solely the bare introduction of isolated, altruistic initiatives which are not comprehensive and strategic enough to sustain.

In a survey study with senior managers, O'Donohue and Torugsa (2016) examined the association between variables of proactive environmental management and financial performance of organizations in Australian small machinery and equipment manufacturing firms, and hypothesized a positive GHRM moderation on this relationship. GHRM focused on developing a green mindset and the necessary level of technical skills to enact a proactive instead of reactive environmental management approach through practices of employee engagement, values-driven training and development opportunities (O'Donohue & Torugsa, 2016). Results confirmed the positive moderating effect of GHRM which shows the added value of using



GHRM as a facilitator of environmental management. In particular, a high level of GHRM increases the financial benefits of proactive environmental management as to low levels (O'Donohue & Torugsa, 2016). This fact helps diminishing the concern of small firms that increased governmental and social sustainability demands indicates a potential cost burden automatically (O'Donohue & Torugsa, 2016). Capable GHRM practices that lead to solid business and financial benefits in the long-run can anticipate regulation and thereby prevail the related financial costs (O'Donohue & Torugsa, 2016). However, small firms need to strategically prioritize allocating resources for the development of GHRM practices, and government agencies and environmental policymakers must recognize how the limited knowledge and resources of small firms hinder the achievement of environmental performance targets (O'Donohue & Torugsa, 2016).

Another issue to consider is organizational size, which positively relates to the degree GHRM practices are used since larger organizations possess more sophisticated resources and in greater quantity to encourage pro-environmental behavior (Zibarras & Coan, 2015). For this reason, O'Donohue and Torugsa (2016) suggested small firms should be provided with investments and training support programs for successfully developing their capability at the same time as they can make use of the informality that characterizes management practices and their family ties to more easily turn green. Ultimately, these authors argue, the study provides empirical evidence that the proactive development of employees' knowledge, mindset, and skills (e.g., GHRM) leads to novel and ameliorated products and processes in terms of eco-efficiency as the necessary innovation and creativity is being triggered, thereby enhancing overall business, financial benefits and employee well-being (O'Donohue & Torugsa, 2016). Guerci and colleagues (2015) empirically examined the hypothesized mediation of GHRM practices on the linkage between stakeholders (e.g., regulatory, customers) pressuring on environmental issues and environmental performance of an organization. Their results revealed

a significant positive mediation of GHRM practices on the pressures-performance relationship (Guerci, Longoni, & Luzzini, 2015). Thus, stakeholder pressures exert a substantial influence on the implementation of GHRM practices, in particular, customer and regulatory pressures positively relate to environmental performance, but customers foster performance to a greater extent between the two because customers might expect more differentiated actions (Guerci *et al.*, 2015). GHRM practices, except green hiring, were positively related to environmental performance, emphasizing the importance of the additive effect of GHRM practices (Guerci *et al.*, 2015). Policy makers, the authors suggest, might re-consider their forms of pressure to foster GHRM implementation, such as lower taxation on the elements of compensation packages based on green performance. Or also, the financial and non-financial support to firms with environmental management projects especially when collaborating with unions in parallel to other organizational mechanisms (green SCM, green logistics, R&D), to answer pressures on environmental issues (Guerci *et al.*, 2015). The empirical evidence of this study can help in decision-making processes regarding investments in GHRM and its prioritization, shows the reasons why HR practices are being implemented and gives proof to the fact that to answer expectations of an extensive set of stakeholders these practices are needed (Guerci *et al.*, 2015).

Harvey and colleagues (2013) examined the influence of HRM on the green performance of UK airlines by greening the pilots. This influence is twofold: (1) Indirect HRM effects on pilots (e.g., influences on job satisfaction, commitment & involvement) and (2) direct HRM effects on pilots (e.g., tailored HRM practices). Direct HRM included training and performance appraisal that focus on the consequences of decisions made by the pilots during aircraft operations, enhancing awareness of the optimum fuel level load, flight levels, and problems with excessive loading (Harvey, Williams, & Probert, 2013). Results revealed significant positive indirect HRM effects on job satisfaction, organizational commitment and employees' voice

through soft HRM policies and practices which reduce discontent, their temptation to sabotage and instead increase their engagement in firm's green performance targets (Harvey *et al.*, 2013). However, study findings also revealed that the direct effects of GHRM initiatives could be undermined by the conflicting joint pressures on pilots to meet financial and environmental objectives to satisfy a wide set of stakeholders. This led to cynicism of the pilots about the effectiveness of the presented initiatives and also about the genuineness of the managers' intentions and environmental commitment behind it (Harvey *et al.*, 2013). The authors argue HRM contributions are heavily dependent on the HR managers' capability to manage well employment relationships when facing the challenges of cost and performance pressures on pilots in the overall context of severe financial and environmental pressures, and to involve the pilots in designing direct HRM initiatives (Harvey *et al.*, 2013). The concept of the *strength of the HR system* is also applicable here. The more the HR department and HRM practices transmit unambiguous signals about which strategic goals are paramount and what behaviors are appropriated, the more likely those goals are going to be achieved as employees infer accurate cause-effect attributions (Bowen & Ostroff, 2004). Contrary, if messages are inconsistent, different employees are subject to different experiences and develop negative attitudes which result in adverse reactions or disillusionment (Bowen & Ostroff, 2004). Additionally, either individual processes will dominate, or the collective sense-making emerged from the ambiguity is inconsistent with organizational strategic goals (Bowen & Ostroff, 2004). In the same vein, Haddock-Millar and colleagues argue that employee engagement can be leveraged through a legit discussion with employees about the integration of environmental practices so that they understand the impact on sustainability when core functional areas are being aligned (Haddock-Millar *et al.*, 2016). The implementation of indirect HRM measures (e.g., involvement, participation) has positive effects on the general goodwill and satisfaction of pilots but is also interrelated with the success of the respective direct HRM

methods (Harvey *et al.*, 2013). These authors thereby argue that HRM with its proven potential can only contribute to green performance, if it goes deep into the complexities of managing the employment relationships especially in the face of different pressures, and if it enables employees to achieve better the outlined targets that are often contradicting themselves (Harvey *et al.*, 2013).

## **4 Discussion**

Within the review on how HRM can contribute to the environmental sustainability of an organization, the role of the HR department and practices in promoting GHRM was discussed. Multi-level dynamics must be recognized to enhance green performance as different business contexts force variations in the alignment of HRM and environmental management. While HR departments generally pursue a passive approach, their environmental management efforts are not clearly articulated and integrating multi-dimensional contributions failed, either because ES is not seen as an HR priority and seen as a threat, or there is a lack of resources (e.g., missing budgets). The role of HR in sustainability was shown as an instrumental one (e.g., internal & processes) which confirms the general criticism of HR being inward-looking and led consequently to a loss of its legitimacy, instead of considering all stakeholders, to design an organizational structure that enables a merger of HR and CS, and to connect GHRM with strategic HRM. Concerning GHRM effectiveness, the most prevalent practices (e.g., manager involvement, green education & training, green induction, green recruitment) are mostly awareness raising and superficially executed; practices that would indicate a behavioral change (e.g., green PM & rewards) were shown to be the least common ones. There are rarely efforts to assess and evaluate the implemented practices, and if there are, the measure is merely perception-based and lacks objective data. The review highlights the need to get valuable feedback from stakeholders systematically and to integrate evaluation metrics of green

operational initiatives that are embedded in daily operational systems (e.g., energy measurement) and embrace a strategic orientation, as well as indirect HRM measures such as employee involvement and participation in ES. To be effective, ES initiatives should be context-adapted, comprehensive, strategic and an externally oriented HRM architecture should be built. Strong HRM systems are needed to engage the employees profoundly.

Concerning the association with organizational performance, GHRM was shown to moderate the relationship between environmental management and financial performance positively, and positively mediate the relationship between external stakeholder pressures and environmental performance. GHRM acts as an enabler by developing employees' skills which lead to improved products and processes and thereby enhancing overall business, and as an effective tool in environmental performance. Even though firm size plays a role, ES demands are not necessarily a cost burden for smaller firms; however, small firms should still be supported by external institutions since HRM has a strong potential to foster green performance of an organization. Hereby, the strength of the HRM system plays a crucial role as it allows to create shared perceptions of what is strategically expected and what gets rewarded, and by the consequent emergence of a strong climate, the firm performance shows improved overall effectiveness. Based on this review, a conceptual model was derived (see Figure 1).

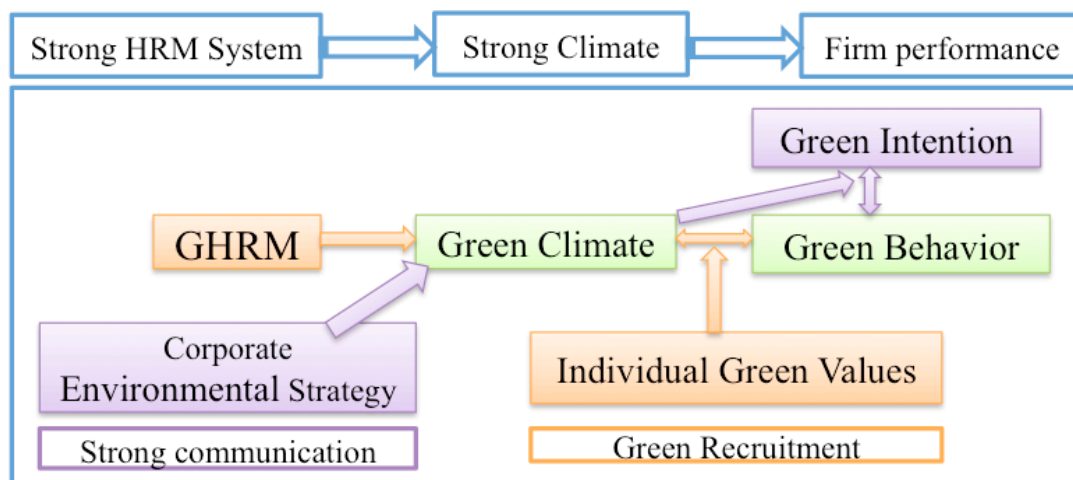


Figure 1. A conceptual model of GHRM

According to the model, GHRM practices and corporate environmental strategy, in the context of strong HRM systems, lead to strong green climates which lead indirectly (e.g., moderating effect on the intention-behavior relation) as well as directly to green behaviors. Green values have a moderating effect in the climate-behavior relationship.

#### **4.1. The role of Information Technology**

As the focus in the articles chosen to answer the research question does not lay specifically with Information Technology (*IT*), its role was not explicitly included in the literature review. However, through its emergence nowadays in shaping and transforming businesses drastically (Dao, Langella, & Carbo, 2011), it is assumed that IT should be considered as a force in greening an organization.

It is referred to integrate distinct *IT resources* with HRM (e.g., GHRM) to develop differential, but significant sustainability capabilities such as a fast information exchange that allows employees being receptive to stakeholder demands (Dao *et al.*, 2011), and as previously mentioned HRM needs to have a strategic role when fostering environmental performance. The placement of e-HRM provides a viable opportunity as an associated seven percent higher level of HR involvement in strategic organizational decision-making was found when e-HRM capability increases by one standard deviation (Marler & Parry, 2016). *Automate IT resources* are not only able to reduce energy and paperwork processing, but also liberate and enable HR professionals to augment their strategic orientation through the automation of business activities (e.g., regulatory mandated employment practices) (Dao *et al.*, 2011; Marler & Parry, 2016). As long as employees hold a positive attitude towards e-HRM (e.g., ease of use, usefulness, trust), it is referred to be the start-off in determining GHRM's success (Yusoff, Ramayah, & Othman, 2015). Furthermore, *informate IT resources* can provide a sustainability performance database (e.g., green PMA) which collects sustainability performance data (e.g., measurement indicators) for evaluation purposes (Dao *et al.*, 2011). *Transform IT resources*

and *IT infrastructure* support GHRM by enhancing the creation of new sustainable products and processes through re-engineering current business practices (Dao *et al.*, 2011). The HR department needs to acquire and develop talent towards the creation of disruptive technologies that allow fundamental innovations (e.g., Green HR planning), talent management systems (e.g., Green PMA) need to reward venturesome behaviors to avoid risk adversity, and long-term employment needs to be ensured (Dao *et al.*, 2011; Marler & Parry, 2016).

#### **4.2. Limitations and conclusion**

This literature review raises limitations and indicates avenues for future research. Firstly, the focus of the review rested upon academic papers. Given the practice-based area, more practice-based reports such as from consulting companies could have been utilized. A second potential limitation reflects the space constraints (e.g., limited number of pages) which restricted the execution of a greater in-depth analysis. As a consequence, studies' results were not demonstrated in a very detailed manner, and the existing body of literature could not be considered extensively. Furthermore, the role of IT interrelated with HRM and consequences of digitalization (e.g., agile work processes, digital leadership, virtual teams) having an impact on ES, could not be thoroughly scrutinized which would indicate an interesting issue.

The context organizations nowadays face calls for a green business approach to pre-empt severe consequences of global warming. HRM's purpose in guiding and mobilizing employees represents a promising prospect for translating organizational change and tackling environmental-related issues through GHRM. GHRM could be a useful tool to facilitate organizational ES as long as HRM characterizes a strong system and exerts a strategic role. Initiated practices should be comprehensive (e.g., acquiring green knowledge, attitude, technical skills), cohesive, context-adapted, profoundly executed and evaluated appropriately. Disruptive technologies should be integrated with GHRM efforts to broaden the application of a green approach. Future research could focus on a broad implementation of agile work meth-

ods initiated through GHRM initiatives and to scrutinize which factors are determining their success. Furthermore, the appropriate operationalization of green performance data should be researched to consequently build an architecture that indicates objective measurement methods which allow a profound evaluation of GHRM initiatives. These avenues of future research could provide insight into the long-term benefits and effects of GHRM on ES and overall organizational performance, on competitive advantage, and lastly, shed light on the contribution to preserving nature through people management.

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## 6 Appendix

Authors	Year	Title	Journal	Content summary
Alcaraz, J. M., Susaeta, L., Suarez, E., Colón, C., Gutiérrez - Martínez, I., Cunha, R., Leguizamón, F., Idrovo, S., Weisz, N., Faia Correia, M., & Ramón Pin J.	2017	The human resource management contribution to social responsibility and environmental sustainability: explorations of Ibero-America	The International Journal of Human Resource Management, DOI: 10.1080/09585192.2017.1350732	Empirical exploration of the perceptions and notions of HR managers in hospitality organizations in 3 Ibero-American countries (Spain, Dominican Republic, Costa Rica) about social and environmental issues, stakeholder collaborations, HRM practices, roles, and internal organization, to find out HRM's role in creating social responsibility and environmental sustainability value (in-depth interviews in 28 organizations); results revealed varying views on these dimensions, and different extents of sustainability commitment, HRM practices implementation and stakeholders engagement; an externally-oriented model was derived to advance HRM's engagement in sustainability issues.
Bowen, D. E., & Ostroff, C.	2004	Understanding HRM-firm performance linkages: The role of the strength of the HRM system	Academy of Management Review, 29(2): 203-221	Article that thrives to advance theory building regarding intermediate linkages responsible for the association of HRM and firm performance; a construct is introduced (e.g., strength of the HRM system) to clarify how a strong organizational climate can evolve that leads to an accumulation of individual employee attributes to affect organizational effectiveness and firm performance.
Dao, V., Langella, I., & Carbo, J.	2011	From green to sustainability: Information technology and an integrated sustainability framework." Journal of Strategic Information Systems, 20: 63-79	Journal of Strategic Information Systems, 20: 63-79	In the context of the triple bottom line and to extend the IT research on sustainability (which so far involves merely the reduction of energy consumption; e.g., green IT), towards a broader scope, an integrated sustainability framework was developed based on the theoretical lenses of the resource-based view; thereby human resources, supply chain resources and IT resources (e.g., automate, informate, transform, infrastructure) are being integrated to develop sustainability capabilities to answer on stakeholder demands and to gain competitive advantage which all in all expands the previous role of IT in sustainability.
De Stefano, F., Bagdadli, S., & Camuffo, A.	2018	The HR role in corporate social responsibility and sustainability: A boundary-shifting literature review	Human Resource Management, 57: 549-566	Literature review at the intersection of HR and CSR/CS to solve the ambiguity of HR's role in facilitating the transition towards more socially responsible and sustainable organizations; the derived framework and typology of potential HR roles in CSR and CS give a broader perspective on this matter and on HR's impact beyond organizational boundaries, and tackles thereby the lack of

				clarity that emerged from multiple dimensions of potential HR contributions and the failure of integrating functions.
Dumont, J., Shen, J., & Deng, X.	2017	Effects of green HRM practices on employee workplace green behavior: The role of psychological green climate and employee green values	Human Resource Management, 56(4): 613-627	Empirical study to test the link between GHRM and employee workplace green behavior while drawing on behavioral HRM and psychological climate literature; the findings showed how through different social and psychological processes, and consequent mediating and moderating mechanisms, GHRM influenced in-role and extra-role workplace green behavior.
Guerici, M., Longoni, A., & Luzzini, D.	2016	Translating stakeholder pressures into environmental performance – the mediating role of green HRM practices	The International Journal of Human Resource Management, 27(2): 262-289	Empirical study (multi-respondents survey with Italian HRM & SC managers) to contribute to GHRM research; following the theory of the instrumental value of stakeholder theory, GHRM practices are utilized to reply to stakeholder pressures regarding environmental issues; distinct GHRM practices mediated the pressures-performance relationship and it is considered that external factors shape GHRM practices.
Haddock-Millar, J., Sanyal, C., & Müller-Camen, M.	2016	Green human resource management: a comparative qualitative case study of a United States multinational corporation	The International Journal of Human Resource Management, 27(2): 192-211	Article that explores (by semi-structured interviews & focus groups with 50 participants) how an American multinational restaurant chain company uses different GHRM approaches in its European subsidiaries (e.g., British, German, Swedish), to analyze similarities and differences, and to find factors that influence the subsidiaries in their GHRM practices and behaviors; results imply an overarching commitment to environmental sustainability, but also differences in the specific approaches, and factors that influence subsidiaries were identified (e.g., cultural dimensions & others); among other things the study enables to address the current lack of international comparative research in the GHRM field.
Harvey, G., Williams, K., & Probert, J.	2013	Greening the airline pilot: HRM and the green performance of airlines in the UK	The International Journal of Human Resource Management, 24(1): 152-166	Empirical study (survey with UK airlines) to investigate the potential of HRM in influencing organizational green performance through the airline pilots; indirect HRM effects (job satisfaction, commitment & involvement in airline) and direct HRM effects (e.g., green HRM initiatives) on pilots' green behaviors were tested; the results imply the importance of the role of the HR function and its effect on green performance, but only if HR managers are able to manage well the employment relationship which is considerably challenging itself.
Marler, J. H., & Parry, E.	2016	Human resource management, strategic involvement and e-HRM technology	The International Journal of HRM, 27(19): 2233-2253	Empirical study (survey data from 5665 companies in 32 countries) to evaluate competing theories around the question if e-HRM will make HRM more strategic in organizations or not; findings showed how strategic HR involvement and higher e-HRM capability are related directly and reciprocally which shows that both variables

				are not mutually exclusive and that both perspectives of the predictions can be supported.
Norton, T. A., Zacher, H., Parker, S. L., & Ashkanasy, N. M.	2017	Bridging the gap between green behavioral intentions and employee green behavior: The role of green psychological climate	Journal of Organizational Behavior, 38: 996-1015	Exploration (through a daily diary survey study with 74 employees across ten working days) of the influence of employees' perceptions and interpretations of organizational policies, practices, and procedures on the enactment of their behavioral intentions through examining within- & between-persons relationships;
O'Donohue, W., & Torugsa, N. A.	2016	The moderating effect of green HRM on the association between proactive environmental management and financial performance in small firms	The International Journal of Human Resource Management, 27(2): 239–261	Empirical study (158 small, Australian manufacturing firms) that explored the moderating effect of GHRM practices on relationship of proactive environmental management and financial performance of an organization to show the added value of GHRM when used as an enabler of environmental management, and to allay the concern of potential costs associated with governmental environmental sustainability demands.
Renwick, D. W. S., Jabbour, C. J. C., Muller-Camen, M., Redman, T., & Wilkinson, A.	2016	Contemporary developments in Green (environmental) HRM scholarship	The International Journal of Human Resource Management, 27(2): 114-128	Literature review on GHRM incorporating and contextually framing seven articles; review findings span green recruitment, competencies, employee participation, financial/environmental performance links, contextual issues (e.g., natural culture, stakeholder theories); it is suggested to recognize these multi-level dynamics to enhance GHRM initiatives profoundly and future research to focus on HR systems and individual behaviors among other issues.
Ullah, M., & Jahan, S.	2017	The green roles of HR professionals: Green human resource management perspective	The Cost and Management, 45:2, 33-41	Explored and identified GHRM's key concepts, functions, practices, policies, challenges, and factors affecting GHRM based on contemporary literature through an archival method and thereby contributed to the GHRM field.
Zibarras, L., & Coan, P.	2015	HRM practices used to promote pro-environmental behavior: A UK survey	The International Journal of Human Resource Management, 26(16): 2121-2142	Empirical study (survey data from 214 diverse UK organizations) to investigate current HRM practices used to promote pro-environmental behavior of employees; findings indicate a shortage of practices implementation and evaluation; furthermore results point out how managers are the gatekeepers to environmental performance and that organizations lack evidence if HRM practices entail a behavioral change and if they are thereby an effective tool or not.